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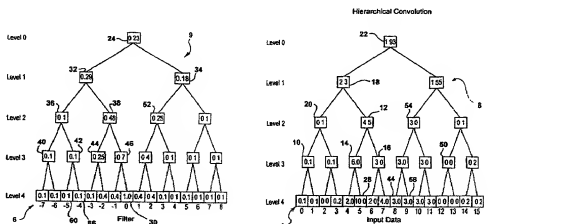
(57) Abstract

A data set (representative of, for example, an image) is convolved with a further data set so as to combine the values of the data elements of the two sets and to map the results into an output data set. The elements of each of the data sets are arranged into a respective set of groups, and for each group at least one variance value representative of the range of values of those elements is obtained. Those variance values are subsequently used to determine for which , if any, pair combinations of groups, one from each set, the results of the convolution calculations based on average values for at least one of the groups in the pair would not differ significantly from the results of convolution calculations based on individual values of the data elements contained in both groups. Convolution calculations for those pair combinations are then performed using the average values, so that the values of all the data elements in one or both groups are treated as being constant and substantially equivalent to the average value for the group. The convolution calculations for the remaining pair combinations of groups (if any) are obtained by convolving individual values of data elements in those groups. The use of said average values expedites the convolution process without the need to transform any of the data sets into the frequency domain (as occurs with Fast Fourier Transform methods).